

BIOLOGICAL EVALUATION OF FOREST
INSECT CONDITIONS ON THE
PAYETTE NATIONAL FOREST DURING 1970

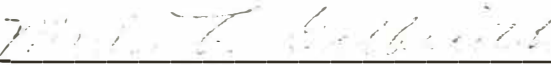
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FOREST INSECT CONDITIONS ON THE PAYETTE N.F.
1970

The following report is a record of major forest insect activity on the Payette National Forest in 1970. Information was compiled from aerial detection surveys, on-the-ground biological evaluations, and from detection reports submitted by the Forest staff.

From the standpoint of tree killing, Douglas-fir beetle caused the most serious losses in 1969, although mortality, as indicated by fading, was not evident until 1970. Heaviest areas of concentration were along the South Fork of the Salmon River from the confluence of the Secesh River downstream to the mouth of the main Salmon. Heavy group losses were also recorded on steep facing northern slopes along the main Salmon River Breaks from the South Fork downstream toward Riggins. Elsewhere scattered Douglas-fir beetle infestations were found Forest-wide. Mountain pine beetle activity continues at an accelerated rate on non-Forest lands south of McCall in the Long Valley area and in scattered locations on the West Division of the Forest in ponderosa and mixed lodgepole pine stands. Western pine beetle activity could be classed as endemic with small group killing occurring primarily in ponderosa pine on the West Division. As reported last year, spruce budworm activity is decreasing in the Primitive Area and increasing rapidly north and west of McCall along the South Fork of the Salmon River, North Fork of the Payette River, and in the Little Salmon and Rapid River areas. Ips, which in the past have done considerable damage in small diameter ponderosa pine stands, have shown little tendency to increase during 1970. Following is a resume by insect species of damage that was incurred on the Forest during the past field season.

DOUGLAS-FIR BEETLE - Dendroctonus pseudotsugae Hopk.

From the standpoint of outright tree mortality, Douglas-fir beetle caused the greatest losses on the Forest as evidenced by fading observed in 1970. Heaviest areas of concentration occurred from the Secesh River confluence of the South Fork of the Salmon downstream to the main Salmon. Many steep facing side drainages along the South Fork suffered Douglas-fir beetle mortality with some group sizes running as high as 500 trees. Large groups of mature Douglas-fir were killed in Elk Creek, Deering, and Rooster Creek. Due to the extreme ruggedness of terrain, no logging for control or salvage purposes was recommended. Elsewhere, large group losses were experienced on steep north facing slopes along the main Salmon River from the mouth of the South Fork downstream to Riggins. Overall losses, compared with those documented in the 1969 report, have decreased markedly in total numbers of infestation centers.

A discussion of the 1970 Administrative Study involving attractants of the Douglas-fir beetle is attached to this report.

MOUNTAIN PINE BEETLE - Dendroctonus ponderosae Hopk.

New, small infestations in lodgepole pine on the Hornet District were detected in the Goodrich and Olive Creek drainages. Approximately 100 ponderosa pines were killed in the vicinity of Round Valley on the Little Salmon River. Losses to this insect in these infestations at the present time are nominal. Elsewhere, however, in lodgepole and ponderosa pines, specifically along the North

Fork of the Payette River between McCall and Cascade Lake, literally thousands of lodgepole have been killed and it appears the infestation will continue to sustain itself at this high level again in 1971.

To date this insect has not encroached on Forest lands; however, increased activity was observed near Paddy Flat where contiguous lodgepole pine stands run up Kennally Creek onto the Forest. Mountain pine beetle activity is at an unprecedented high level throughout Long Valley as evidenced by heavy fading. Presently, tree killing is occurring primarily on private and state lands.

Fifty random 1/10 acre plots taken in the fall 1970 show that the beetles are expected to increase their attacks in this area. A buildup ratio of 3:1 was determined.

A show me tour of the area was conducted for interested State, industry, Pest Action Council members, private land owners and Forest Service personnel. Due to the widespread area involved and the intensity of the infestation, direct control is not feasible or recommended. Direct control action, even if undertaken, could at best only delay for a few years the loss of the threatened trees.

Recommendations to accelerate logging in the area to harvest already attacked and threatened susceptible stands have been accepted and logging is in progress.

In view of the current interest and the development of insect attractants a small scale field test was conducted using transverbenol and alpha pinene

on private lands west of the North Fork of the Payette River. This small scale test demonstrated that a certain degree of attractivity can be exerted on in-flight populations of the mountain pine beetle; however, specific reaction to baited trees was not as pronounced as has been demonstrated with the Douglas-fir beetle. Preliminary results from this test showed that the mountain pine beetle can be attracted into the general area of a baited tree. Considerable field testing with the pheromone will be necessary before the effectiveness of the material can be established. This is not to be considered a control technique at the present time.

WESTERN PINE BEETLE - Dendroctonus brevicornis Lec.

This potentially destructive bark beetle attacked ponderosa pine in widely scattered areas on the West Division of the Forest. For the most part, tree killing was limited to ten or less trees per group. At present, there is no reason to believe this insect will cause more than nominal damage for at least another field season.

SPRUCE BUDWORM (western form) - Choristoneura fumiferana occidentalis

Defoliation by this pest has dropped off markedly in the Primitive Area where it has been at a relatively high level for the last three years. In 1963 101,000 acres, or approximately 45 percent of the total known budworm defoliation area and intensity were observed along the South Fork of the Salmon River

and north of McCall along the North Fork of the Payette River, along the Little Salmon and Rapid Rivers on western portions of the Forest. Table 1 shows defoliation intensity by area from 1968 through 1970.

Elsewhere on the Forest, the spot infestation on Cuddy Mountain of slightly over 13,000 acres that was observed in 1969 collapsed completely.

Entomological summer crews surveyed several locations on the Forest where sample plots have been established in the past. Two additional plots were established on Paddy Creek and in the North Fork of Lake Creek. Table 2 shows the areas and predicted defoliation for 1971.

PINE ENGRAVER - Ips SPP.

Overall Ips activity on the Forest is at a relatively low level. However, some group killing was observed adjacent to sale areas.

There is no way of predicting when a buildup of Ips populations can and will occur. There are however certain preventive measures that have been instituted, like the December 1 closing date that have been effective in keeping man made Ips epidemics at a minimum.

A theoretical alternative in Ips management that would permit summer logging would be to cut in such a manner that continuous green slash would be put down during the months of May through the first of September. After that period of time Ips activity is nominal. Logging units would have to be side-by-side so that emerging Ips populations could be "led" from one cutting unit into the next unit's green slash. It would be mandatory to burn the slash at the end of the cutting period.

In the past considerable concern has been expressed by land managers when Ips activity became visually acute. This particular situation existed through 1966-1967, when large areas of small diameter ponderosa pine were attacked and killed on the west side of the Forest. Even though visual damage appears to be quite severe, we currently do not have an accurate assessment of just how much losses have been incurred in the past or what could possibly be lost in future years if Ips became epidemic. We will initiate a field evaluation study during 1971 to determine past mortality, what the impact on the stands to date has been, and to follow the course of new outbreaks, if and when they develop, to determine current year losses. The idea behind this study would be to determine whether or not the Ips are actually causing intolerable economic damage to ponderosa stands. There is a possibility, even though the damage appears to be severe, that actual mortality in stands is not economically significant.

TABLE 4

COMPARISON OF DEFOLIATION INTENSITY, 1968

	Light			Moderate		
	1968	1969	1970	1968	1969	1970
Drainage and or Area						
Big Creek (Primitive Area)	46,280	42,600	12,000	32,000	13,600	-
Main Salmon R., between Middle & South Forks	11,400	29,300	2,600	9,800	9,700	-
So. Fk. Salmon R., between Mackay Bar & Secesh R. Entry	20,480	17,600	5,200	2,920	17,200	2,300
Secesh R. & Tributaries	7,120	13,100	6,600	1,120	5,600	6,100
Upper So. Fork (Kruschel)	8,400	11,400	14,400	-	5,400	8,800
Main Salmon River, Mackay Bar to Riggins	29,800	24,900	17,400	23,640	23,000	15,700
Little Salmon River & Tributaries	7,680	21,300	29,900	-	15,900	14,300
Payette Lakes & No.Fk.	13,480	24,600	34,000	-	19,300	14,200
W.Fk. Weiser R., (Lost Cr. Railroad Saddle)	-	12,300	11,800	-	700	1,000
Rapid River	800	7,000	7,100	-	2,600	4,700
Bear Cr. Indian Cr. (Hornet)	-	-	5,600	-	-	700
Deep Cr. - Seven Devils	-	-	1,200	-	-	100
Cuddy Mountain	1,000	12,200	-	-	1,200	-
Marble Cr.(Primitive Area)	-	3,000	-	-	-	-
Total Acres of Intensity	146,440	219,300	147,800	69,480	114,200	67,900
% of Total by Intensity Class	66.1	60.6	66.	31.3	31.5	30.7

*Determined by Aerial Observation

Spruce Budworm Egg Mass Sampling Data and Predicted
Defoliation for 1971

Table 2

Plot Location	(District)	1970 Egg Masses/ 1,000 sq. in.	1971 Defoliation
Fall Cr. #1	(New Meadows)	5.2	15-25%
Fall Cr. #2	(McCall)	5.0	15-25%
Jackie Cr.	(Krassel)	3.0	<15%
N.F. Lake Fork	(McCall)	-	<15%
Boulder Cr.	(Boulder)	4.7	15-25%
Paddy Cr.	(McCall)	5.0	15-25%
Cow Cr.	(Krassel)	1.0	<15%
Smokey Cr.	(Boulder)	6.5	51-90%
Hat Cr.	(New Meadows)	6.3	15-25%
Split Cr.	(Krassel)	1.0	<15%
W. Fk. Weiser R.	(Boulder)	12.4	51-90%
Goose Cr.	(New Meadows)	11.6	51-90%
NE End Payette Lake	(McCall)	7.8	25-50%
Sister Cr.	(Krassel)	1.3	<15%
Wagon Bay Cr.	(McCall)	4.4	15-25%
Little Buckhorn	(Krassel)	4.4	15-25%
N.Fk. Payette R.	(McCall)	9.8	51-90%
Warren Summit	(Warren)	2.0	<15%
Last Chance Campground	(Boulder)	1.3	<15%